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|  | M.S.D.S (Material Safety Data Sheet) SBR 1712 / 1721 / 1712 LM / 9801(BERGIC code) / 9802 / 9803 / 1712 (ROCKIC code) / 1712 (LUNARIC code) | Number MSDSPF 03 Date 2002-07-16 Rev 4 Resp. Renato Allemand Approv. Felipe Cavalcante |
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VERSIONS

| Rev - Date - Version | Approval |
|---|--|
| 0 - 98/06/14 - First emission 1 - 00/06/15 - Revision Section I / II 2 - 00/11/24- Revision Section II / IV / XV 3 - 02/04/22 - Inclusion of the series 9801(BERGIC Code). / 9802 / 9803 4 - 02/05/23 - Inclusion of the series 1712 (ROCKIC Code) and 1712 (LUNARIC Code). | Felipe Cavalcante Moutinho Felipe Cavalcante Mônica Romero Marcio Canosa |

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: PETROFLEX SBR - Rubber in styrene butadiene emulsion

ESPECIFICATION SERIE: ESBP -1712 / 1721 / 9801(BERGIC Code).
/ 9802 / 9803 / 1712 (ROCKIC Code) / 1712 (LUNARIC Code).

CHEMICAL NAME: Styrene-Butadiene Copolymer

CAS NR: 9003-55-8

PRODUCT DESCRIPTION:

Styrene-Butadiene copolymer, produced by polymerization in cold emulsion using a fatty and rosin soaps mixture as emulsifier. Stabilized with staining antioxidant. PETROFLEX SBR is extended with 27,0 / 37.5 parts of highy aromatic oil by 100 parts of the polymer and coagulated in salt-acid system.

Obs: All especifications: Nitrosable / Nitrosamine free.

MANUFACTURER:

PETROFLEX INDÚSTRIA E COMÉRCIO S/A - BRASIL

CAXIAS - Rua Marumbi, 600 -CEP 25221-000 Campos Eliseos - Duque de Caxias, RJ

Phone. (55-21) 2677-1008 , Fax - (55-21) 2776-3550

SECTION II - COMPOSITION

CHEMICAL FAMILY: SBR latex

FORMULA: $(CH_2-CH=CH-CH_2-CH_2-CHC_6H_5)_n$

| Substance | Conc. range % | C.A.S and EINECS/EC N.º | Prov. or INDEX N.º | Symbol and R phrases (for health hazards) |
|-------------------------------|------------------|----------------------------------|--------------------------|--|
| Styrene-Butadi n cop lym r | 69 | 9003-55-8 | NC | NC |
| Distillat (petrol um) | 27 / 37.5 | 64742-04-7 | 649-002-00-9 | T |

| | | | | |
|---|--|--|--|-----------------------|
| aromatic xtract | | | | R45 – May caus cancer |
| SECTION III - HEALTH EXPOSURE LIMITS / HAZARD IDENTIFICATION | | | | |

Critical hazards to man:

Presence of aromatic oil, which is classified as R45. May cause cancer. (see Section XV)

EXPOSURE LIMITS

| Brasil | | | | OSHA EUA | | ACGIH EUA | | | | NIOSH EUA | |
|--------|------|------|------|----------|------|-----------|------|-----------|------|-----------|------|
| L. T | | V. M | | TW A | | TLV/ TWA | | TLV/ STEL | | ID LH | |
| ppm | mg/m | ppm | mg/m | ppm | mg/m | ppm | mg/m | ppm | mg/m | ppm | mg/m |
| NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC |

SECTION IV - HEALTH HAZARDS

INGESTION: Under normal working conditions has no hazard.

INHALATION: Under normal working conditions has no hazard

SKIN CONTACT: Contact with hot product may cause slight local irritation.

EYE CONTACT: Cause slight eye irritation.

CHRONIC / OTHERS: NA

TOXICOLOGICAL INFORMATION: Presence of aromatic oil, which is classified as R45. Although scientific evidence has shown that oil in the elastomer is not biologically available to present a skin cancer risk, prolonged and repeated skin contact with oil extended rubber should be avoided.

DANGEROUS TO HEALTH EFFECTS FROM EXPOSURE TO THE PREPARATION:

Polymer:

Does not present any intrinsic health hazards when processed according to correct working procedures. The acute/systemic toxicity is very low.

Aromatic Oil:

Although carcinogenic, scientific evidence supports the view that oil included in rubber is not able to initiate or promote epidermal carcinogenesis. Laboratory testes have demonstrated that oil included in rubber is not able to migrate to an aqueous solution like human sweat.

Additives:

Additives, in the form and quantities contained in these products are not expected to present health hazards.

SECTION V - FIRST AID PROCEDURES

EYES: Rubber powder may cause mechanical irritation. Flush immediately with large amount of water for at least 15 minutes. Get medical attention if irritation persists.

INGESTION: NA.

INHALATION: NA

SKIN: In case of contact with hot product, wash local with normal temperature water. with soap and water. Get medical attention if irritation persists.

SECTION VI - FIRE AND EXPLOSION DATA

CLASSIFICATION: SOLID COMBUSTIBLE

FLASH POINT (°C): ND

IGNITION POINT (°C): 320

LOWER EXPLOSIVE LIMIT(%): ND

UPPER EXPLOSIVE LIMIT(%): ND

FIRE FIGHTING MEASURES:: Water spray, foam and dry chemical powder and CO2.

BASIS FIRE FIGHTING PROCEDURES: Remove all combustible material. Use water spray for cooling fire-exposed containers, structures and protect personnel. If possible stay upwind.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Product may burn quickly with flames.

DECOMPOSITION BURNING PRODUCTS: Carbon nonoxide emissions.

SECTION VII - SPILL OR LEAKAGE PROCEDURES

1.PERSONNAL PRECAUTIONS: See section VIII for PPE and other informations.

2.ENVIRONMENTAL PRECAUTIONS: Keep unnecessary people away. Insulate hazard area. Avoid entry in sewers or water sources. Dike the spilled product with inert material, for later disposal according local laws and regulations.

SECTION VIII - HANDLING AND STORAGE

Handling require no special precautions.

Storage in dry and well ventilated area, and keep away from heat sources.

STORAGE TEMPERATURE: Up to 50°C

PRESSION: 760 mmHg

VENTILATION: No special ventilation procedure is necessary.

IDENTIFICATION: Combustible solid, non toxic.

SECTION IX - PERSONAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Under normal working conditions no respiratory protection is required.

EYES: Safety glasses.

HANDS: Where contact may occur with hot material , wear thermal resistant gloves.

ADDITIONAL: NA.

SECTION X - PHYSICAL PROPERTIES

PHYSICAL STATE: Solid

APPEARANCE: PETROFLEX 1712 black
PETROFLEX 1721 black.

ODOR : Odorless

BOILING POINT (°C): NA

MELTING POINT (°C): 100 (max)

MOLECULAR WEIGHT: ND

DENSITY (WATER=1): 0,95 -0.97

VISCOSITY: NA

VOLATILES BY VOLUME (%): 0,75 (max)

VAPOR PRESSURE (mm Hg):NA

WATER SOLUBILITY AT 20°C: Insoluble

SOLUBILITY (g/100g): Soluble in aliphatic, aromatic, solvents and chloride hydrocarbon.

SECTION XI - REACTIVITY DATA

STABILITY: ☒ - STABLE ☐ - UNSTABLE

POLYMERIZATION HAZARD: ☐ - MAY OCCUR ☒ - WILL NOT OCCUR

Product under normal temperature conditions extratification can occur, polymerization that will raise with temperature.

CONDITIONS TO AVOID: NA

DECOMPOSITION TEMPERATURE: NA

THERMAL DECOMPOSITION PRODUCTS: Carbon monoxide.

SECTION XII - ENVIRONMENTAL PROTECTION

ENVIRONMENTAL: May contaminate water and soil.

TREATMENT AND DISPOSAL: According to environmental local and federal laws.

SECTION XIII - DISPOSAL CONSIDERATIONS

DISPOSAL: Collect in an approved containers for recycling, according to local and federal laws and regulations.

SECTION XIV - TRANSPORT INFORMATION

ONU NUMBER: NC

LABELING: NC

IMO/IMDG: NC

HAZARD IDENTIFICATION: NC

SPECIAL RECOMENDATIONS: NC

Not dangerous according to regulations: ADR/RID, IMO, IATA.

SECTION XV - REGULATORY INFORMATIONS

Presence of aromatic oil ; the products should be classified R45 as they contain extract (petroleum), heavy paraffinic distillate, classified Carc, Cat.2, R45 and labeled as follows;

- indications of danger: T (toxic)
- risk phrases: R45 (may cause cancer)
- safety advice: S53 (avoid exposure-obtain special instructions before use). S45 (in case of accident or health concerns, seek medical advice immediately, show the label if possible).

However, based on the work referred to in section IV and according to EEC directives 91/325 and 83/21, annex VI, part. II, para. 9.2, labeling related to the above R & S phrases is not required for oil extended rubber in the form in which it is placed on the Market.

SECTION XVI - ADDITIONAL INFORMATIONS

ABBREVIATIONS:

MSDS - Material safety Data Sheet

NA: not applicable;

NC.: not classified;

ND: not determined;

ACGIH: American Conference of Governmental Industrial Hygienists.

CAS: Chemical Abstract Service.

LC50: Air concentration that can causedeath in 50% of exposed animals.

LD50: Dose that can causedeath in 50% of exposed animals

mg/m³: Milligrams of substance per cubic meter of air.

NFPA: National Fire Protection Association.

NIOSH: National Institute for Occupational Safety and Health.

OSHA: Occupational Safety and Health Administration.

PEL: Permissible Exposure Limits.

TLV: Threshold limit Value.

TWA: Time Weighted Average.

STEL: Short Term Exposure Limit

REFERENCES:

1. PETROFLEX, INDÚSTRIA E COMÉRCIO S/A - Brasil

2. PRÓ- QUÍMICA - ABIQUIM, *MANUAL PARA ATENDIMENTO DE EMERGÊNCIAS COM PRODUTOS PERIGOSOS*, GUIA NR-32, 1994.

This information only concerns to above mentioned product and does not need to be valid when used other product(s) or in any process. The information is to our best present knowledge correct and complete and given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriately complete for his special use of this product.